

Title of the Invention: CHEMICAL-MECHANICAL POLISHING FOR SHALLOW
TRENCH ISOLATION

5 4. ABSTRACT OF THE DISCLOSURE

A method of chemical-mechanical polishing for forming a shallow trench isolation. An oxide layer having has a pyramid-like profile is formed over the substrate, so that a shallow trench in the substrate is filled therewith. A partial reverse active mask is formed on the oxide layer, so that the oxide layer on a central part of the
10 large active region is exposed. Whereas, the oxide layer on an edge part of the large active region and on the small active region are covered by the partial reverse active mask. The oxide layer is etched with the silicon nitride layer as a stop layer, using the partial reverse active mask as a mask. The oxide layer is planarized until the oxide layer within the shallow trench has a same level as the silicon nitride layer. The
15 remained oxide layers have no a continuously large and a high profile, so that can be easily polished in the subsequent CMP process. A recess formed while polishing a large trench is avoided